

**Adding a Dungeons & Dragons® Modification to the Road Drawing Assessment as an Art-Based**

**Intervention to Increase Self-Efficacy in Emerging Adults**

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ALBERTUS MAGNUS COLLEGE

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DATE: January 31, 2024

TO: Michael Prezioso  
FROM: Albertus Magnus College Institutional Review Board  
PROJECT TITLE: Adding a D&D Modification to the Road Drawing Assessment as an Art-Based Intervention to Increase Self-Efficacy in Emerging Adults  
IRB ID Number: 202324-007

SUBMISSION TYPE: New  
DECISION: Approved  
ACTION: COMPLETE

Dear Michael Prezioso:

The Albertus Magnus College Institutional Review Board (AMCIRB) by Expedited Review has considered the New submission for the project referenced above. Following this review, the AMCIRB has **Approved** this study, from 1/31/2024 to 1/31/2025.

Research activities (including screening, new recruitment, follow-up, and continued participation of enrolled participants) that have been approved may not be conducted beyond the expiration date stated above unless a continuation/renewal is requested and approved by the IRB.

If you have any questions, contact the AMCIRB at [irb@albertus.edu](mailto:irb@albertus.edu) . Please include your project title and IRB Project Number in all correspondence with the IRB.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Albertus Magnus College Institutional Review Board's records.

### Abstract

The present study investigated the effect of adding a *Dungeons and Dragons* ® modification to Michael J. Hanes' Road Drawing on the self-efficacy of emerging adults who play D&D. Participants with any form of D&D® experience and were emerging adults between the ages of 18 and 30 were qualified for this experimental study. Prior to the art directives participants in both the experimental and control groups were given the *General Self-Efficacy Scale* (GSE; Schwarzer & Jerusalem, 1995) to fill out. The experimental group was given the Road Drawing with a D&D modification. The control group was administered the unaltered Road Drawing directive. After participants finished their art directives, they were provided with a Post GSE scale to fill out. It was hypothesized that those in the D&D modified group would experience a significant change in self-efficacy, while those in the Road Drawing control group would experience a moderate change in self-efficacy. This hypothesis was not supported as it was found that the D&D group only showed a moderate change in self-efficacy and the Road Drawing group experienced a significant change. The small sample size of  $N = 16$  may have contributed to this lack of support for the hypothesis.

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## **Adding a Dungeons and Dragons® Modification to the Road Drawing Assessment as an Art-Based**

### **Intervention to Increase Self-Efficacy in Emerging Adults**

Within the past ten years in the United States, emerging adults have had a difficult time transitioning through the various milestones leading to adulthood (Cook, 2020; Eliason et al., 2015; McGinley & Evans, 2020; Olenik-Shemesh et al., 2018). To navigate the transition to adulthood, perseverance is required (Eliason et al., 2015; Elliot, 2016). Perseverance to achieve any goal can be strengthened through feelings of belief in oneself, known as *self-efficacy* (Bandura, 1997). The *Road Drawing*, an art therapy assessment and intervention tool created by Hanes (1997), can help clients navigate developmental transitions and support an individual's "capacity to undergo reparation and change" (p. 1). An added benefit of the Road Drawing is its ability to encourage the use of metaphor as an aid in expressing difficult content (Hanes, 1997).

Role-playing games (RPGS) such as Dungeons and Dragons® (D&D) have long been popular with emerging adults. Perhaps in part because these kinds of fantasy games often center around navigating a journey filled with transitions and challenges not so different from the life transitions for this age group (Baker et al, 2022; Henrich & Worthington, 2023). It is not surprising, then, to imagine that fantasy role-playing games may serve as a useful intervention for practicing strategies to navigate real-life experiences.

### **Dungeons and Dragons**

D&D is a collaborative fantasy role-playing game that uses imaginative storytelling with a set of highly structured rules. The game integrates various medieval fantasy elements (such as castles, dragons, magic, etc.) to tell a story. In D&D terms, these stories are known as a *campaign*. Specific elements of the campaign include the player's characters (referred to as *adventurers*) and some form of terrain and locations, generally within the medieval fantasy motif, though other fantasy settings can be used. The adventurers will also encounter *non-player characters* (NPCs) who aid in advancing the narrative. Non-Player Characters can be helpful companions, the main villain, or just extras for plot development. Participants can find useful resources such as treasure and magical items to give their adventurers added strength or advance the plot. The campaign can also feature hazardous elements such as monsters, puzzles, and general environmental hazards like those found in fantasy narratives (Wyatt & Cordell, 2014).

### ***Dungeons & Dragons® Maps***

Dungeons & Dragons utilizes two types of maps, similar to the concept of a board used in board games. One map type is the *encounter map*, which is the board on which the game is played. There is also a *continental map*, the larger version of a world map. This map depicts the overall world the adventurers will be traversing. This larger continental map provides context to the locations of adventures in encounter maps (Boudreau, 2022).

Encounter maps change throughout the game based on where the adventurers are in the story, because the players typically do not know all the details about where they will be going. A *dungeon master (DM)* is the gamekeeper or referee, of sorts, and the person who creates the story and encounter maps for the player's adventurers. An encounter map is always drawn from a bird's eye view perspective. The main purpose of the encounter maps, which consist of conflicts

with enemies, natural elements, and NPCs, is to establish the framework for the journey.

Encounter maps also give a visual reference for the story and gameplay so participants know where their adventurer is in relation to other elements, such as enemies and structures.

Adventurers gain various assets and abilities from their experiences with these encounters, allowing them to “level up”. Leveling up allows them to learn more abilities to explore more difficult areas and survive more difficult and hazardous encounters (Boudreau, 2022; Waskul & Cordell, 2014).

### ***The Impacts of Dungeons and Dragons on Mental Health***

Navigating conflicts along a challenging journey is an element commonly found in *role playing games* (RPGS) and other interactive video games. such as *massively multiplayer online roleplaying games* (MMORPGS). One major difference between RPGS and MMORPGS, besides the sheer number of players, is that in the latter real-world players will continue on and develop even while the player is offline. This may increase a sense of challenge in play. Still, based on recent research, both types of these games may increase problem-solving skills relationship-building, strategic thinking, and planning (Baker et al., 2015; Henrich & Worthington, 2021) Additionally, multiplayer games can increase a sense of social connection and camaraderie (Baker, et al. 2022). This social connection can be seen in the D&D community through its efforts to rid itself of sexism in what had traditionally been a male dominated community (Soucie et al., 2012).

Individuals who play D&D and other RPGs have been viewed by society as lacking social skills and having mental illness diagnoses (Baker et al., 2022; Lis, et al., 2015). However, research has shown that those individuals who play do not have a disproportionate level of

mental illness as compared to non-players (Baker et al., 2022; Henrich & Worthington, 2021; Lis, et al. 2015). Specifically, D&D players did not show a substantial difference in scores on the Beck Depression and Eysenck Personality inventories when taken with a control group of non-players (Baker et al., 2022). Additionally, no specific personality type has been associated with D&D players (Henrich & Worthington, 2021).

Research has also shown that D&D positively impacts the mental health and social skills of individuals who play (Baker et al., 2022; Henrich & Worthington, 2021; Waskul & Lust, 2004). Of note, during the height of the COVID-19 pandemic, when many individuals reported mental illness and loneliness, interest in D&D® skyrocketed (Baker et al., 2022). The popularity of the game during this time can be attributed to its capacity as a vehicle for connection with other people in a shared community at a time when social isolation was emotionally challenging. The impact of the value of the D&D social bonds was evidenced in Facebook® group messages between a group of D&D players with the content focused on themes of friendship maintenance, democratic values, and extraordinary experiences (Baker et al., 2022).

***Dungeons & Dragons Tabletop Version.*** Although D&D is considered a form of MMORPG played in a multiplayer format, the tabletop genre of D&D and other similar games (described as a roleplaying game or RPG) has been overlooked in favor of the trend in online gaming (Lis et al., 2015). Still, there is value in the tabletop format of the game in its ability to transcend racial, cultural, and societal barriers. For example, in prison settings, there are official and unofficial rules regarding racial mixing. Prisons may segregate according to race or prisoners may self-segregate in common spaces like the cafeteria and yard (Poor & Woods, 2017). In San Quinten State Prison, prisoners are officially housed based on race and self-segregate in the



showers and the yard. The yard has one neutral area where a racially mixed group of incarcerated individuals play D&D together, giving inmates an opportunity to freely socialize in a racially diverse setting (Poor & Woods, 2017). Playing a game in a tabletop format allowed inmates to socialize face to face and share a common interest that transcends the racial boundaries of a rigid system regarding race, a social phenomenon which may not occur in the digital format of the game (Baker et al., 2022; Waskul & Cordell, 2017).

### ***The Player's Connection to their Adventurer and Self-identity***

D&D players explore emotional content through their in-game character role or *adventurers* (Baker et al., 2022; Waskul & Lust, 2004). For example, an adventurer may need to emotionally respond to various events on the encounter maps such as multiple adventurers in their group or *party* getting critically injured in an enemy encounter and being required to choose who to heal. Although players take on the persona of their adventurer, players have shared that they are most comfortable making in-game decisions based on their own personality. This suggests that although the decisions are in a fantasy context, important decisions are predominantly driven by the player's real-life behavior and disposition (Waskul & Lust, 2004). Dungeons & Dragons players also stated that when they tried to role-play as an adventurer who had vastly different values, it was generally not an enjoyable experience. Players also found the game strategies more effective when they treated their character as an extension of themselves (Waskul & Lust, 2004). These player responses suggest a value in fantasy role play that may help in strengthening core identity and a sense of self (Waskul & Lust, 2004).

***Fantasy, reality, and problem solving.*** The ability to move back and forth between fantasy and reality is a key component in strengthening decision-making skills (Armstrong,

2001). Fantasy role-playing can be a safe place to practice creative solutions to new problems and better understand an unfamiliar situation (Armstrong, 2001). Players also found that they could practice social skills as their adventurers that they could later translate to real-life situations (Baker, et al. 2022). Similarly, the concept of a low-risk opportunity to try out creative problem-solving is also a key component of the use of metaphor in art therapy. Creating art provides an opportunity to test new skills in a safe environment that allows for revisionism and practice which can then be applied to real-world conditions (Rosal, 2018)

### ***Dungeons and Dragons in the Therapeutic Setting***

The roleplay and narrative aspects of D&D can fit in naturally with the therapeutic environment. There is a hypothesis that the format of D&D addresses therapeutic goals such as reducing choice paralysis, empathetic awareness, increasing confidence, assertiveness, fostering coping skills, and working through existential meaning (Baker et al., 2015; Henrich & Worthington, 2021). The game has also been used with clients who have been diagnosed with more serious disorders. For example, in an individual diagnosed as obsessional schizoid personality, the structured format of D&D enabled exploration of emotions in a non-threatening way (Baker et al., 2015). This non-threatening approach is similar to how art therapy interventions, such as the road drawing can help individuals explore their own history and emotional content in a safe way (Hanes, 1997).

It seems that D&D is not a perfect fit for the average therapeutic setting. A limitation to using D&D in the therapeutic setting is that it encompasses a vast number of rules (Henrich & Worthington, 2023). The *D&D® Player's Handbook* (Wyatt & Cordell, 2014) consists of over 300 pages explaining various rules relating to the game and character development. There are

also supplement books for different campaign themes as well as new editions that are released periodically (Wyatt & Cordell, 2014). Learning all these rules can be daunting for clinicians who want to use D&D as a therapeutic tool. This means that a clinician wanting to use this game as an intervention would first need to undergo training or an extensive reading program (Henrich & Worthington, 2021).

## **Road Drawings**

The Road Drawing (RD) is a popular art therapy assessment tool and intervention created by Michael J. Hanes (1997). Using the depiction of a road as a metaphor for a transition or journey, this above assessment uses a familiar subject that is common across cultures and with a shared universal meaning (Hanes, 1997). The road as a central element is non-threatening, familiar, and tends to be viewed as a neutral topic (Hanes, 1997,2008). The metaphors associated with road imagery allow the participants to tell their personal origin story, the experiences they have had thus far, and their hopes for the future (Hanes, 1997). This linear autobiographical narrative told through the Road Drawing may be compared to the journey elements that D&D employs through its storytelling and roleplay features (Baker et al., 2022; Henrich & Worthington, 2021; Waskul & Lust, 2004) For example, just as D&D has an encounter map, the Road Drawing also elicits an image that often looks much like a kind of map with barriers, signs, and directional choices along the way. The encounter elements of the Road Drawing are encouraged by a script suggested by Hanes (1997) requiring the participant to envision aspects of the road such as the type of road, condition of the road, any intersections, road signs, present, and energy areas. The facilitator can use their own judgment about how many questions should be pursued (Hanes, 1997). Hanes (1997) states that it is important to look at the Road Drawing from

the lens of the person the facilitator is working with and to consider their personal symbology, culture, and presenting issues.

Unlike the pervasive fantasy elements of D&D's map drawing, the RD generally uses universal reality-based elements that hold symbolic and metaphoric meaning for the individual (Hanes, 1997). For example, while most RD images are executed as stereotypical paved roads with dotted lines dividing them in half, some depictions may be more abstracted or fantasy-based such as a spiral road or heart-shaped road. Other reality-based elements in the RD typically include street signs, various road conditions, different road materials, and scenery found alongside roads such as natural landmarks and buildings (Hanes, 1997). While these objects may seem ordinary on a surface level, they can hold deeper meanings, often evidenced by discrepancies between graphic indicators. For example signs found along a road may be suggestive of deeper meaning if they do not match the conditions of the road, such as a speed limit sign of 100 miles per hour on a treacherous road. Even signs used in an appropriate context could give insight into an individual's coping strategies, fears, or concerns, such as a one-way sign, which seems to restrict choice, can represent stubbornness or helplessness (Hanes, 1997). Conversely, intersections may be symbolically associated with choice and may indicate a person's focus on a significant life decision at a crucial time (Hanes, 1997).

### ***Road Drawings with Vulnerable Populations***

The non-threatening nature of the road drawing allows it to be an effective intervention for vulnerable populations such as inmates on suicide watch (Hanes, 2008), women in substance abuse treatment (Hanes, 2017), and sexual and gender minority individuals (Zascirinskis, Pepper, & Tischler, 2023). Individuals who are part of these vulnerable populations may have lower

confidence levels, which can translate to their unwillingness to create art. The road drawing can avoid these insecurities through its simple and familiar motifs (Hanes, 2008, 2017). Incarcerated individuals and those going through substance abuse tend to have rigid defense mechanisms to survive (Hanes, 2008, 2011). The subject matter of the road drawing allows for more spontaneous expression, allowing for more emotions to be expressed while avoiding some of these rigid defenses through its metaphors (Hanes, 2008, 2017). Additionally, members of the LGBTQ+ community may find the Road Drawing a useful tool in navigating the range of emotions, challenges, and successes of their coming out experiences (Zascirinskis et al., 2023).

### **Emerging Adults and Transitions**

Emerging adulthood is a pivotal period for individuals between the ages of 17 and 30 as they navigate transitions into adulthood, often comparing their progress with their peers (Eliason, Mortimer, & Vuolo, 2015). This comparison can lead individuals to feel they have not met standards with age norms and feel troubled in terms of identity (Eliason et al., 2015). During this transition individuals may develop several roles simultaneously. For example, an emerging adult may be pursuing higher education for professional development while simultaneously considering marriage and starting a family (Eliason et al., 2015). Depending on the order these roles are developed can affect their level of importance (Eliason et al., 2015).

Soucie, Lawford, and Pratt (2012) were interested to investigate the importance of empathy and its relation to emerging adults. They conducted a quantitative study that compared the real-life empathetic and non-empathetic personal narrative stories of adolescents and emerging adults (Soucie et al., 2012). Life narratives were chosen since life experiences are constantly evolving throughout an individual's life and provide continuity for the creation of a

secure and unique identity (Soucie et al., 2012). This use of using real-life personal narrative storytelling to explore empathy is similar to the fantasy narratives used in D&D (Henrich & Worthington, 2021). Soucie et al., (2012) also investigated “authoritative parenting and dispositional empathy” (p. 141). Authoritative mothers were found to be more involved with the empathetic and nonempathic events related to their children, which translates to children developing a secure empathetic identity (Soucie et al., 2012). When individuals had more empathy, they tended to engage in more prosocial behaviors (Soucie et al., 2012). These prosocial behaviors can be an important part of developing *self-efficacy* (Dupéré et al., 2012; Bandura, 1997).

### **Self-Efficacy**

According to Bandura (1997), self-efficacy is “concerned with judgments of personal capability” (p. 11). Self-efficacy should not be confused with self-esteem, which is when the individual is concerned with self-worth (Bandura, 1997). Bandura (1997) noted that self-efficacy originates from four principal sources of information. These principal sources are: *enactive mastery experiences*, *vicarious experiences*, *verbal persuasion*, and *physiological and affective states* (Bandura, 1997).

*Enactive mastery* experiences occur when individuals strengthen self-efficacy through repeated failure yet still are able to persevere, believing they have the ability to overcome obstacles, until finally mastering a situation. *Vicarious experiences* strengthen self-efficacy in the form of measurement by comparison to someone else's accomplishments in order to appraise one's own capabilities. Self-efficacy can be strengthened through *verbal persuasion* when an individual is encouraged about their abilities; encouragement is especially effective when it

comes from individuals who are considered important. Finally, increased self-efficacy can occur with a heightened awareness and effective management of *physiological and affective states*. For example, if individuals who are experiencing overwhelming feelings and somatic responses to a stressful situation reach out to loved ones for support or seeks therapy to successfully cope, they will gain mastery over their feelings, experience a reduction in stress-related symptoms, and strengthen self-efficacy.

These four principles mentioned earlier demonstrate the various experiences, responses, and strategies that inform a person's internalized sense of self-efficacy (Bandura, 1997). Both persistence and environmental factors also play a role in the development of self-efficacy, especially for emerging adults in college settings (Dupéré, et. al, 2012; Elliot, 2016). College persistence was found to increase when an individual possesses motivation, a strong self-concept, and is able to seek help from others. (Elliot, 2016). A sense of belongingness to one's neighborhood can also contribute to strengthened self-efficacy based on the quality of local institutions, resources, general support of community members, and neighborhood safety. (Dupéré, et. al, 2012).

## **Summary**

Emerging adults are usually at a point where they may be reflecting on their life and where their future is taking them. They also may be trying to figure out the right time to move to the next role milestone (Eliason, 2015). Road Drawing can help individuals explore their life's story from origin to hopes for the future (Hanes, 1997, 2017; Zascirinskis et al., 2023). With the addition of a D&D modification, the individual can place themselves in theoretical scenarios to practice skills through roleplay, which can then be translated to real-world applications

(Armstrong, 2001; Baker et al., 2022; Rosal M.L., 2018). Self-efficacy has been shown to be strengthened and nurtured through social means (Bandura, 1997; Dupéré, et al. 2012; Elliot, 2016). Social skills and interaction are also practiced through D&D (Baker et al., 2022). Dungeons & Dragons is a game that has therapeutic value through its ability to allow players to practice social skills, problem-solving, empathy, and coping skills (Baker et al., 2015; Henrich & Worthington, 2021). Adding a D&D modification to a well-established art therapy assessment and intervention, such as the Road Drawing can allow art therapists to employ a D&D-based directive without the need for extensive training in D&D rules (Henrich & Worthington, 2021).

The main aim of the present study is to test if a D&D modification to the Hanes (1997) Road Drawing will increase self-efficacy in emerging adults.

## **Methods**

### **Participants**

A total of 16 adult participants ranging in age from 18 to 29 ( $M=25$ ,  $SD=2.2$ ) were recruited: 7 women, 7 men, 1 genderfluid, and 1 non-binary. Twelve participants were White/Caucasian (75%), one was American Indian (6.3%), one was Mexican (6.3%), one was Latin American (6.3%), and one stated that they preferred not to say (6.3%). Recruitment was through a flyer (Appendix A) posted in relevant locations such as tabletop gaming stores and comic book shops. The flyer was also posted on social media platforms such as Instagram and GroupMe. Snowball sampling and word of mouth were also utilized. Attempts were made to recruit participants from diverse backgrounds (e.g., gender identities, race/ethnicity, and sexual



orientations). Besides age and some form of D&D experience, there were no other exclusionary criteria for this study.

## **Instruments**

### ***The General Self Efficacy Scale***

The General Self Efficacy (GSE - Schwarzer & Jerusalem, 1995) Scale is a self-administered 10-item measure that utilizes a 4-point Likert-type scale ranging from *(1) not true at all* to *(4) exactly true*, with total scores ranging between 10 and 40. This measure has been shown to predict an individual's ability to cope with everyday life and how well they can adapt after stressful events (Schwarzer & Jerusalem, 1995). The scale has demonstrated validity and reliability in 23 countries (Bäßler & Schwarzer, 1996; Rimm & Jerusalem, 1999; Scholz, Gutiérrez-Doña, Sud, & Schwarzer, 2001; Schwarzer, Bäßler, Kwiatek, Schröder, & Zhang (1997); Schwarzer, Born, Iwawaki, Lee, Saito, & Yue (1997); Zhang, & Schwarzer (1995). Specifically, it has been found reliable in the US, with a strong Cronbach's alpha of .79 (Luszczynska et al., 2005). Construct validity has been demonstrated by correlations with similar valid and reliable scales, such as the Life Satisfaction Scale ( $r=0.4$ ,  $p < .05$ ; Schwarzer & Jerusalem, 1995).

## **Materials**

Participants in both groups were provided with 98 lb. 12 in. x 18 in. (30.48 cm x 45.72cm) Canson® multimedia paper. For drawing materials, participants in both groups were provided with a 12-pack of Crayola® colored pencils, a 12-pack of Sakura® oil pastels, and a 12-pack of Artist's Loft® Soft Pastels. Additionally, the *D&D Player's Handbook, Dungeon*

*Master's Guide* and *D&D Monster Guide* were provided to the experimental group to use as references for the various D&D elements, such as items, monsters, and NPCs.

## **Procedure**

After participants made contact regarding their interest, they were asked to meet in person to fill out an art release (see appendix B), informed consent (see appendix C) and demographics (see appendix D) forms to sign. This information was stored separately from other collected information in a locked safe. All participants were assigned different numbers to keep personal information confidential. The document specifying these numbers was stored in a separate folder on an external drive as well as a separate folder in a locked box.

Block Randomization was utilized to randomly place participants evenly into conditions. This randomization sequence was generated with the assistance of a free online resource (Research Randomizer - Version 4.0) made accessible by the Social Psychology Network (Urbaniak & Plous, 2013). Participants scheduled their study session at a neutral location.

Both control group and experimental group were given the GSE (see appendix E) before doing their designated art activity. No identifying information was collected on these forms. Participants' GSE inventories were kept in a locked cabinet. The control group was then given a standard road drawing assessment with the structured instructions created by Hanes (1997):

“I would like you to draw a road.” Take a pause and offer suggestions such as, ‘Is this a fast road, slow road, curvy road, straight road, flat road, or hilly road? Is this road made of dirt, blacktop, stone, cement, brick? What is the condition of your road? Is there more than one road or more than one lane? Where does the road lead? Are there any intersections? Is there anything alongside your road, around your road, or in your road?’

Are there any signs along your road?' Any questions from the participant will be answered in a way that does not imply a right or wrong method (Hanes, 1997,).

The experimental group was managed in a similar manner (with identical art materials, plus the D&D Player's Handbook and D&D Monster Manual), but the art directive was a modified a D&D fantasy-based version of Hanes' (1997) Road Drawing instructions. There was a modified art-based instruction for the experimental group (see appendix F).

Once each group had finished their art directives they were given the GSE again, along with an opportunity to write something about their art or their art experience, if they so chose. Demographic information was recorded on the forms, but no names were recorded, and the forms were stored in a locked cabinet within a faculty members office. After completing the forms, participants were debriefed, provided a debriefing form (see appendix G), and thanked for their time.

## Results

A paired samples  $t$  test was conducted to compare change in self-efficacy from pre to post intervention for both the Road Drawing group and the D&D Modification group. A significant increase in self-efficacy was found for the Road Drawing group  $t(7) = 2.94$ , Cohen's  $d = 1.04$ ,  $p = .011$ , but not the D&D Road Modification group  $t(7) = 1.67$ , Cohen's  $d = .592$ ,  $p = .069$ . While not significant, a moderate effect was found.

A post hoc power analysis was conducted using G\*Power version 3.1.9.7 (Faul et al., 2007) for sample size estimation as a follow-up analysis, based on the nonsignificant findings. With a significance criterion of  $\alpha = .05$  and power = .80, the minimum sample size

needed for an effect size of .592 is  $N = 20$  for a paired  $t$ -test. Thus, the obtained sample size of  $N = 8$  is likely not adequate to test the study hypothesis. An independent  $t$ -test was conducted to establish if there was a difference between groups. No significant difference was found between the Road Drawing group ( $M=2.0$ ,  $SD = 1.93$ ) and the D&D Modification group ( $M=1.00$ ,  $SD = 1.69$ ),  $t(14) = 1.1$ , Cohen's  $d = .552$ . However, a moderate effect size was found. As before, inadequate sample size precluded a definitive test of the hypothesis.

### Discussion

The main hypothesis of this research was that adding a D&D modification to Hanes 1997 Road Drawing would have an impact on the self-efficacy of emerging adults. It was hypothesized that individuals who have played D&D or who have enjoyed fantasy storytelling would experience higher self-efficacy after participating in the D&D modified Road Drawing directive. It was further hypothesized that those who participated in the non-modified Road Drawing group would also demonstrate an increase in self-efficacy, but to a lesser extent than the experimental group.

Although the results did not support either hypothesis, there were encouraging findings in the data. Results from the non-modified Road Drawing group showed a greater and statistically significant effect on general self-efficacy in emerging adults than the D&D modification group. There are several possibilities for this outcome. One may be the fantasy-based focus of D&D, which may not be well-suited for emerging adults who are developmentally focused on reality-based self-efficacy tasks such as obtaining a first professional job, marriage, and moving away from parents (Eliason et al., 2015). A fantasy-based art directive may be more beneficial for

those needing diversional therapeutic intervention rather than a focus on reality-based developmental milestones.

Another factor which might have contributed to the results was the level of D&D experience across the participant pool. For example, one participant with high levels of D&D experience appeared extremely engaged in the art process (Figure 1). This individual utilized approximately forty-five minutes to complete the art and exhibited a strong sense of pride when explaining the detailed elements of the artwork. Participants with less experience with D&D and who may not have made a grid map before may have been less comfortable and familiar with the modified Road Drawing process. Road Drawings, in contrast, request the participant to depict a road, which is a symbol more universally understood across cultures (Hanes, 1997). Participants of any skill level might have perceived road imagery as less threatening and more familiar to draw, thus influencing their reporting feelings of self-efficacy.

An individual's motivation for playing D&D might have also contributed to the results. For example, some individuals play D&D for the social aspects of the game. During the height of the COVID-19 pandemic, in which social interactions were limited due to social distancing measures, interest in D&D was found to increase (Baker et al., 2022). Some individuals might have been self-motivated to begin playing to create more social opportunities and 'stay connected. Other individuals, including several participants in this study, report gaining interest in D&D because a significant other, friend, or family member invited them to play. Participants motivated by social factors might not possess the same knowledge of D&D as those motivated by a personal interest in creative gameplay and fantasy map design.

Another aspect of the research that parallels the literature is the impact of personality characteristics on gameplay. Waskul and Lust (2004) found that players tend to choose class

types and play styles that relate to their own personality, values, and ways of operating in the world around them. Players who attempt a class or play style that exhibits traits unfamiliar to their own personality tend to experience discomfort and revert to a class or play style that more closely aligns with/resembles themselves. One participant, for example, stated that they play as a *paladin*. The paladin is a class in which the character is bonded by a sacred oath that guides one's decision-making (Wyatt & Cordell, 2014). While debriefing, the participant reported that they do not follow an oath typical of the paladin class while playing D&D because it does not align with how they operate in their own life. Curiously, this participant had a high and virtually unchanged GSE score pre and post in the experimental condition, something that might be indicative of a more mature and developed sense of self for this individual regardless of experimenting with class and gameplay style.

The results of this study highlight several clinical implications that should be considered. The first clinical implication is related to social skills. Role Playing Games, especially tabletop role-playing games like D&D, provide emerging adults with an opportunity to practice social skills (Baker et al., 2022; Henrich & Worthington, 2021; Waskul & Lust, 2004). Access to a space to practice social skills became especially important during the Covid-19 pandemic, when loneliness was extreme (Baker et al., 2022). Individuals who enjoy games like D&D and wish to increase their social skills might benefit from a combination of RPG elements and group art therapy.

The second clinical implication is the importance of considering the type of intervention most suits the demographic in need of support. Identity formation is an important task for individuals in the emerging adult stage, as evidenced in the artwork and narratives of two participants in the control group (Figure 2 and Figure 3). Post-GSE scores for Participant 2

increased, and they disclosed post-art making that the original binary gender selected on their demographic form did not represent their actual gender identity, which they indicated was gender fluid. In their Road Drawing, this participant chose to work with chalk pastels, the most fluid art material offered during the intervention. They spent a portion of their time spreading the chalk around on the paper to create a foggy effect around what appeared to be buildings in between the curves of the road. Gender identity formation is an important task in emerging adulthood and it may be that this art-making process encouraged this participant to feel more confident in one's gender expression.

Similarly, another participant who identified as non-binary and reported engaging in affirming care, including hormone treatment, also created a notable Road Drawing (Figure 3). The image appears to be drawn from the first-person point of view imagery features both organic life (indicated in the pathway with green plants on the edges) and death (indicated by dead trees on either side of the path). This imagery may be symbolic the person transitioning gender identity and expression. This participant's pre-GSE score was high and remained the same after creating art, indicating a strong sense of self-efficacy.

There are several limitations to this study. The small sample size (N=16) of this study might have also contributed to a lack of support for the hypothesis, as noted in the reported post-hoc power analysis in the results. It should be noted that the hypothesis may still not have been supported even with a larger sample size. If similar results were obtained with a larger sample, this would provide evidence supporting the use of this intervention. The sample also lacked racial diversity. Ethnicity and gender, however, were fairly balanced, which may be reflective of current player trends. The game has tended to be viewed as a primarily white, male activity in the past but has grown into being much more diverse (Henrich & Worthington, 2023). As

previously mentioned, participant levels of D&D experience varied and may have impacted their ability to create an encounter map in the experimental condition. Creating an encounter map is an activity usually completed only by the *DM* or *Dungeon Master*, a leadership role in the D&D game. Few participants had reported this level of experience in the game. No assistance was provided by the research facilitator and the combined lack of experience could have negatively affected self-efficacy scores. To remedy this discrepancy in experience levels, a prescreening test could have been administered to recruit D&D players with more proficient D&D or DM experience.

The GSE survey used had its own set of limitations that may have caused a lower score differential between pre and post-surveys. The first limitation was the number of questions. The GSE features ten questions, and the time between pre and post-GSEs was less than one hour. One participant verbalized that they felt it would “look weird” if they did not get the same score the second time taking the GSE. Answers to the pre- and post-GSE surveys might be easily replicated between the relatively brief questionnaire and a short period of time offered within the scope of this study. General Self-Efficacy survey questions could have been reordered, or a longer survey could have been used to make replicating responses more difficult. Future research might also consider that self-efficacy might have greater stability and that a longitudinal study is more suitable to capture fluctuations in levels of self-efficacy.

An additional critique of the GSE survey was related to the wording of question 2: “If someone opposes me, I can find the means and ways to get what I want” (Schwarzer & Jerusalem, 1995). One participant expressed that this language felt extreme and stated that for that reason they would rate themselves lower. During post-survey completion, participants were



asked how they felt about the wording of this question. Numerous participants stated that it did affect how they answered the question.

A final limitation in this study was the wording of the experimental D&D modification script. Multiple participants asked for the script or portions of the script to be repeated as they could not remember all the elements mentioned. Confusion regarding the script might have impacted score differentials. A solution would be to simplify the script and leave certain aspects (such as whether NPCs are helpful or harmful, what type of items are present, and whether the party is strong enough to take on the obstacles present) open to interpretation for the participants. These aspects would more than likely be considered by an experienced D&D player without prompting.

Although the hypothesis was not supported, D&D still appears to the researcher of this present study, to have therapeutic value for this population, and the modified Road Drawing task piloted herein seems worthy of further refinement and investigation. The RPG gameplay and focus on fantasy elements present a safe space for individuals to explore identity and practice social skills (Baker et al., 2022; Henrich & Worthington, 2021; Waskul & Lust, 2004). The inspiration for this study originated from the author witnessing real-life behaviors in relation with game decisions and peer interactions. The creative nature and use of metaphor to explore difficult topics in D&D and adventurer development align with art therapy interventions and might have potential to be an effective modality with group art therapy.

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**Figure 1**

D&D modified Road Drawing- art engagement



*Note:* D&D modified Road Drawing by a 27-year-old male who was highly engaged in the art-making process. After he created his art he took time to explain the narrative depicted in his art.

Figure 2

*Road Drawing- identity formation*

*Note.* A Road Drawing drawn by a 26-year-old Caucasian genderfluid individual with high D&D experience who initially identified as male, but disclosed that they identify as genderfluid after completing their Road Drawing and post GSE.



**Figure 3**

*Road Drawing- identity formation*



*Note.* Road Drawing by a 27-year-old non-binary individual who started gender affirming care. This individual represented themselves in this image by depicting their feet on the road. Pre/Post GSE scores were the same, but scores for some individual items fluctuated.



Appendix A  
Recruitment Flyer

# Do You Play D&D?

**D&D players are needed for an  
art based study!**

**No art experience is needed!**

**WHO: Adults ages 18-30.**

**WHERE: (TBA)**

**TIME: This study will take aprox. 1  
hour**

**If interested contact:**

**Mike Prezioso at [mdprezioso@albertus.edu](mailto:mdprezioso@albertus.edu)**

**This research study is fulfilling the thesis  
requirement for a graduate student at  
Albertus Magnus College**

**This study has been approved by the IRB  
at Albertus Magnus College**



## Appendix B

## Art Release

## Art Image Release Form

You have the right to confidentiality in all aspects of the research process, including the art that you create.

You are being asked to allow the investigator to photograph your artwork to be used for the research study.

Please note that the photographs of your artwork will remain confidential. Your name will not be connected with your artwork, and photographs of the artwork will not include any identifying information. Photographs of the artwork will only be taken with your consent and used beyond this research for the purposes listed below.

Please indicate your agreement to have your artwork photographed without identifying information for the following purpose(se): (Please check all that apply)

- For educational and training purposes
- Presentation at a professional conference
- Publication in a professional journal
- I DO NOT agree to share images of my artwork beyond the research study for the above purposes

**I hereby give consent, as noted above, for the use of my photographed artwork.**

Name (print): \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Please note that once images have been disseminated for publication or in a presentation setting, they may be difficult or impossible to recover should you change your mind.

- I received a copy of this form for my records.

## Appendix C

### Consent Form

#### Informed Consent Form

This study is being conducted as part of the requirements for the completion of the Master of Arts in Art Therapy and Counseling degree at Albertus Magnus College. The purpose of this study is to test the effectiveness of a modified art therapy directive on the self-perceptions of emerging adults.

In this study, you will first be asked to sign consent forms, followed by filling out a demographic form, completing a 10-item questionnaire assessing your perceptions of yourself and your capabilities, and then taking part in an art-making activity. This study is expected to take approximately 60 minutes. Please note that your art-making ability is not a factor in this study. All information collected in this study will remain confidential. To maintain confidentiality, pictures of your artwork and your answers on the survey items will be numbered, and your name will not be connected to the work in any way. Pictures of your artwork will be stored in a password-protected file on an external hard drive. You will be told in more detail about the purpose of this research at the end of this study. The researcher does not anticipate any major risks associated with participation in this study. On occasion, some participants may feel a little discomfort in participating in a research study. Some potential risk factors may include the rise of negative feelings from questions directed toward your self-perceptions, or an increase in frustration from the art process. The benefits of participating include assisting a graduate student in the completion of his thesis requirement, as well as contributing to research on the effects of art therapy. You may also enjoy the art activities.

Participation in this research study is completely voluntary, and you are welcome to withdraw at any time if you no longer want to participate for any reason. You do not have to give any further explanation other than that you no longer want to participate. The Institutional Review Board (IRB) at Albertus Magnus College has approved this study.

Please inform the facilitator if you are allergic to any art materials. If you feel concerned about anything regarding this study, please feel free to contact any of the individuals listed below:

The Facilitator:  
Mike Prezioso  
[mdprezioso@albertus.edu](mailto:mdprezioso@albertus.edu)

Art Therapy Advisor:  
Dr. Lisa Furman  
[lfurman@albertus.edu](mailto:lfurman@albertus.edu)

Psychology Advisor:  
Dr. Stephan Joy  
[sjoy@albertus.edu](mailto:sjoy@albertus.edu)

Institutional Review Board contact:

[IRB@albertus.edu](mailto:IRB@albertus.edu)

Your signature below indicates that you are between 18 and 30 years of age, have read and understand the description of the study, have had all your questions addressed, and are willing to participate.

Name (print): \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_ I received a copy of this form for my record.

Appendix D  
Demographics Form

Demographics Form

- 1) Age\_\_\_\_\_
- 2) What gender do you identify with? \_\_\_\_\_
- 3) Which race do you identify as? (check all that apply)
  - ☐ Asian
  - ☐ Black/African American
  - ☐ White
  - ☐ American Indian
  - ☐ Alaska Native
  - ☐ Native Hawaiian
  - ☐ Other Pacific Islander
  - ☐ Prefer not to Answer
  - ☐ Self describe \_\_\_\_\_
- 4) Ethnicity?
  - ☐ Hispanic/Latinx
  - ☐ Non-Hispanic/Lantix
- 5) On a Scale of 1-5 how would you rate your D&D experience
  - ☐ 1 (very little, played once)
  - ☐ 2 (little, played a long time ago)
  - ☐ 3 (occasionally play)
  - ☐ 4 (play often)
  - ☐ 5 (play often and/or have DM experience)
- 6) Briefly describe your D&D experience (i.e how often you play, have you DM'd, have you created a grid/encounter map before).

## Appendix E

## General Self-Efficacy Scale (GSE)

**General Self-Efficacy Scale (GSE)**

	Not at all true	Hardly true	Moderately true	Exactly true
1. I can always manage to solve difficult problems if I try hard enough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. If someone opposes me, I can find the means and ways to get what I want.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. It is easy for me to stick to my aims and accomplish my goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(This is a sample, does not represent full 10-item scale)

## Appendix F

## Art Based Instructions for Experimental Group

“I would like you to draw a D&D encounter map.” Take a pause and offer suggestions such as, “Does this take place at the beginning, middle, or end of your campaign? Does this take place in a dungeon, on a road, in a town, city, or somewhere else? How many adventurers are in the party and what classes are they? What is the goal of the adventurers? Are there enemies present? If there are enemies, is the party strong enough to deal with them? Is this a safe environment or is it a dangerous environment? Are there helpful items that can be found on your map? If non-player-characters (NPC’s) are present, what are they like?”

## Appendix G

### Debriefing Form

#### Debriefing Form: Adding a D&D Modification to Road Drawings

Thank you for your participation! The purpose of this study was to discover whether a D&D modification to road drawings can raise the self-efficacy of individuals who play D&D (or enjoy fantasy storytelling) compared to an already established art-based directive. The questionnaire you were given is a scale that measures perceived self-efficacy. Participants were randomly divided into a control group (where they were exposed to a traditional road-drawing art-based directive) and an experimental group (where they were exposed to a D&D modified version of the road-drawing art-based directive).

The hypothesis of this study was that individuals who play D&D or enjoy fantasy storytelling will experience higher self-efficacy after participating in the D&D modified road drawing directive, compared to participants in the control group. Additionally, it is hypothesized that those who participate in the non-modified road drawing will still have an increase in self-efficacy, but to a lesser extent.

The risks of this study were minimal. Most participants experience a sense of enjoyment from engaging in the art activity. Some individuals may feel a sense of frustration from the art materials and/or the art-making process.

If you would like to know the results of this study, please provide your email address to the researcher. Do note that results can only be provided in aggregates (the mean of all scores); individualized results cannot be provided. If you have experienced anything beyond a mild, transitory negative response, please feel free to contact the researcher with any questions at [mdprezioso@albertus.edu](mailto:mdprezioso@albertus.edu).

If you need more support beyond that, please contact one of the community mental health services:

**Connecticut Mental Health Center at (203) 974-7300**  
**Southwest Community Health Center at (203) 330-6000**

If you are a student at Albertus Magnus College, you may also contact the Albertus Magnus College Counseling Center at (203) 773-8149 or [counseling@albertus.edu](mailto:counseling@albertus.edu)

If you would like to learn more about art therapy, please visit the American Art Therapy Association at [www.arttherapy.org](http://www.arttherapy.org)

For more information on road drawings, see the following resource:

Hanes (1997). Roads to the unconscious: A manual for understanding road drawings. Oklahoma City, OK: Wood  
'N' Barnes.

For more information on D&D® from a therapeutic perspective, see the resource below:

Henrich & Worthington (2023) Let Your Clients Fight Dragons: A Rapid Evidence Assessment regarding the  
Therapeutic Utility of 'Dungeons & Dragons', Journal of Creativity in Mental Health, 18:3, 383-401, DOI:  
10.1080/15401383.2021.1987367



